

# Contact dermatitis caused by methacrylates in nail products

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**A** 33-year-old woman presented to the patch test clinic with eczema around the nail folds of both hands, which appeared 12 hours after having shellac nail polish applied at a nail salon (Figure 1). The patient reported that she had had similar reactions with artificial gel nails two years earlier, which subsided when she stopped using artificial nails.

On examination, there was mild redness and scale around her nails. Patch testing with the North American Contact Dermatitis Group Standard Series and an acrylate and methacrylate series revealed reactions to multiple acrylates and methacrylates. We made a diagnosis of allergic contact dermatitis caused by her nail products.

Methacrylates are compounds found in all artificial sculpted nails and shellac nail polish. They are also commonly found in dental materials and orthopedic bone cement.<sup>1</sup> Increasingly, methacrylates are becoming common contact allergens among consumers and nail technicians.<sup>1</sup> About 2.6% of patients with contact dermatitis react to hydroxyethyl methacrylate (the most commonly sensitizing methacrylate) on patch testing.<sup>2</sup> The nail salon industry is estimated to generate over \$8 billion annually in the United States; in a 2014 survey, over 93% of salons offered gel nail products containing methacrylates.<sup>3</sup>

The differential diagnosis for dermatitis affecting the nail folds includes psoriasis, tinea manuum, irritant contact dermatitis and allergic contact dermatitis. Diagnosis of allergic contact dermatitis is confirmed by patch testing; physicians should refer patients who use or work with nail products for testing if they present with dermatitis of the nail fold or fingertip.

If contact allergy has been identified, patients must avoid all methacrylates because of substantial cross-reactivity and co-sensitization between various methacrylates.<sup>1</sup>

In the workplace, nail technicians can reduce risk by avoiding use of methacrylates. If use cannot be eliminated, technicians may use more protective glove materials such as nitrile, double glove when working with products containing methacrylate and change gloves frequently.<sup>1</sup>

## References

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**Figure 1:** Dermatitis eruption of the nail folds caused by methacrylate contact dermatitis from shellac nail polish in a 33-year-old woman with nail polish removed.

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